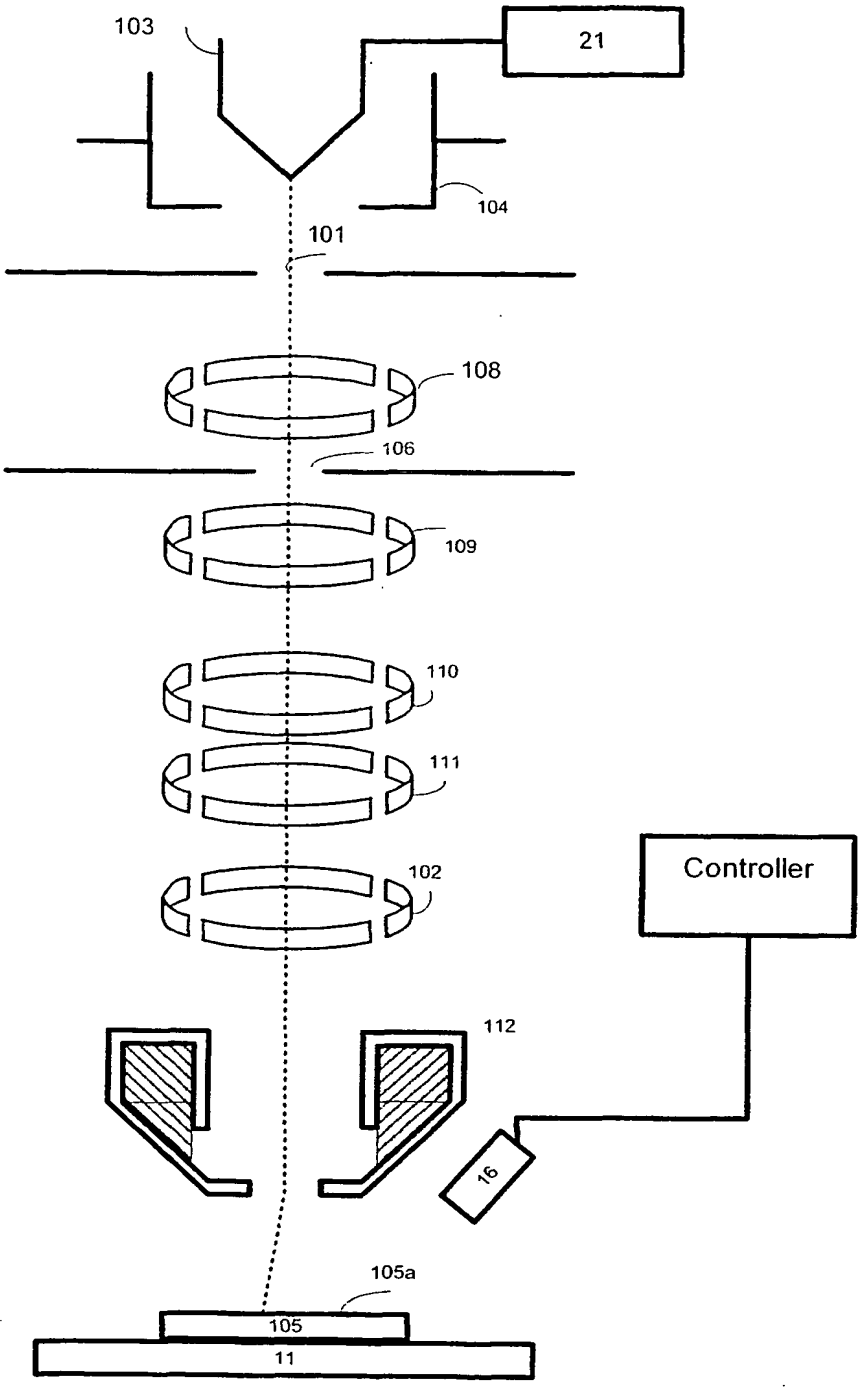

103
21
104
101
108
106
109
110
111
102
Controller
112
16
105a
105
11

Figure 1a

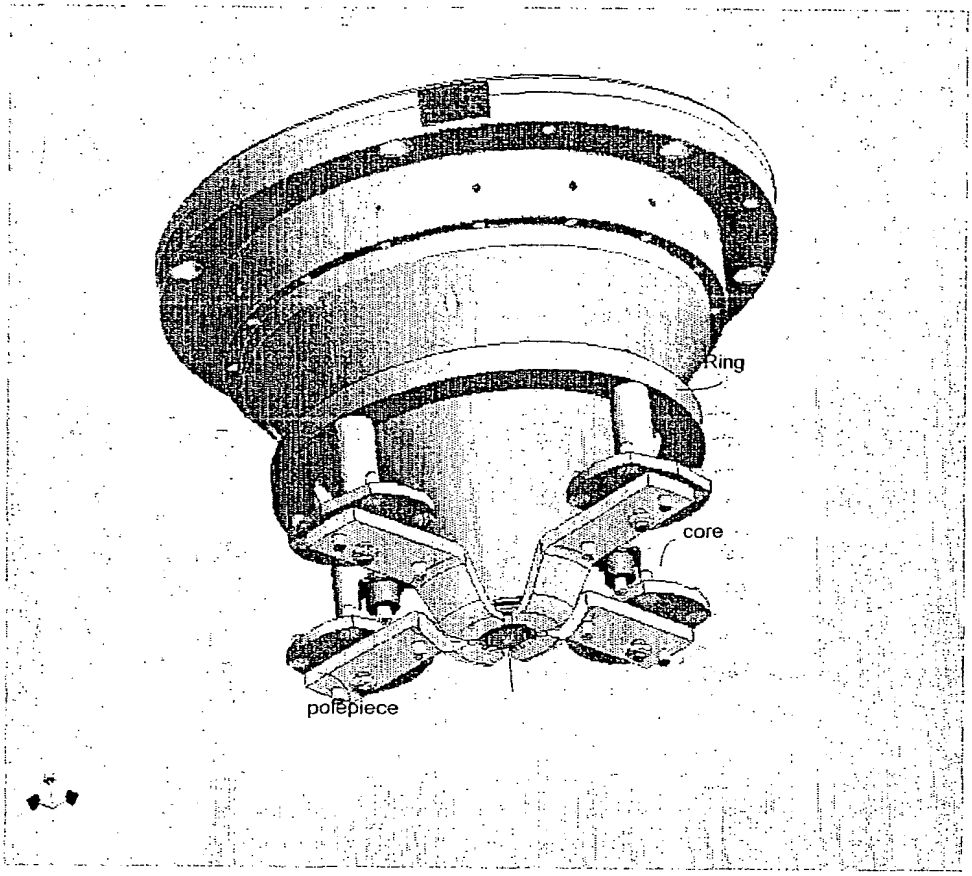


FIGURE 1b

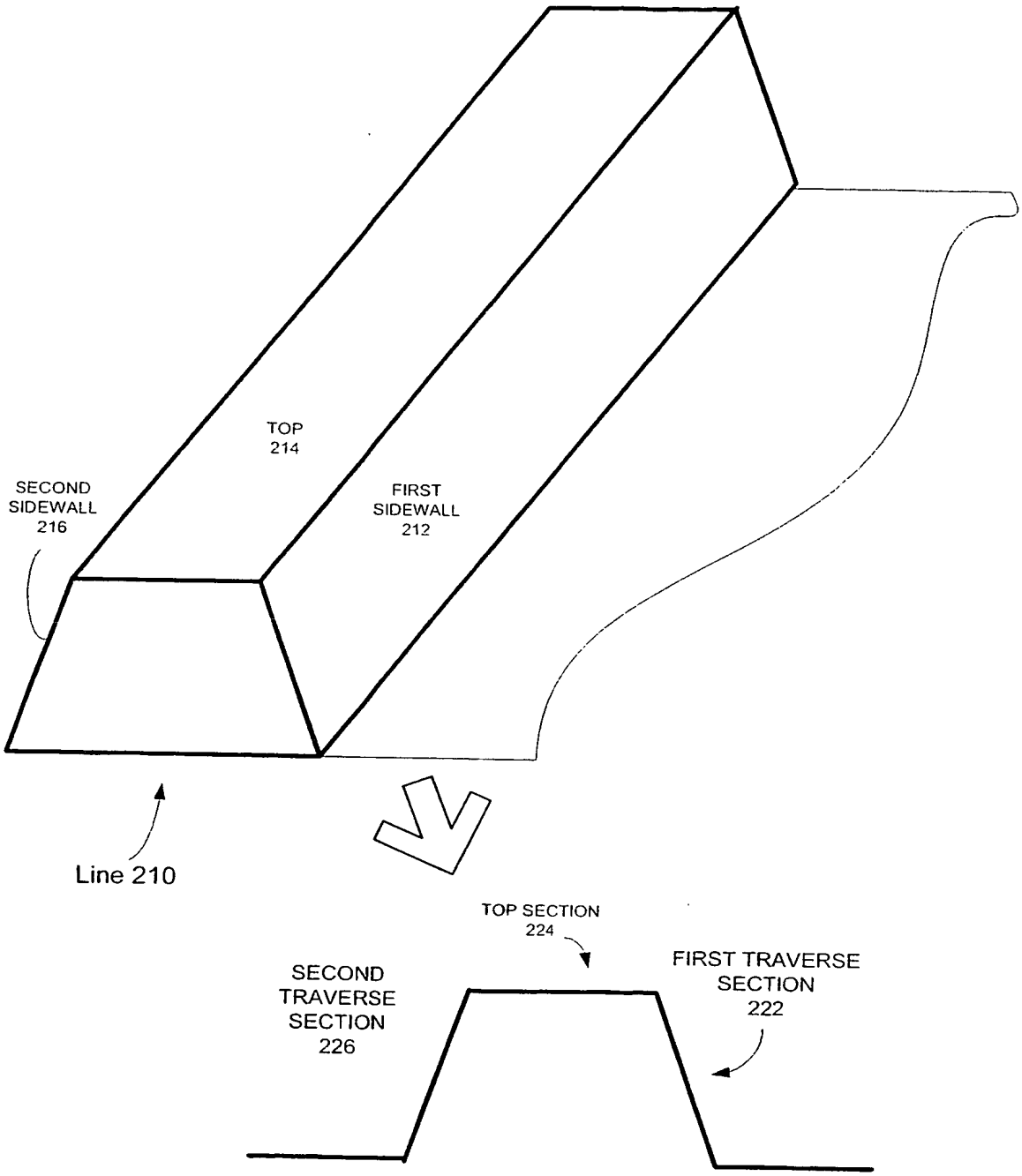
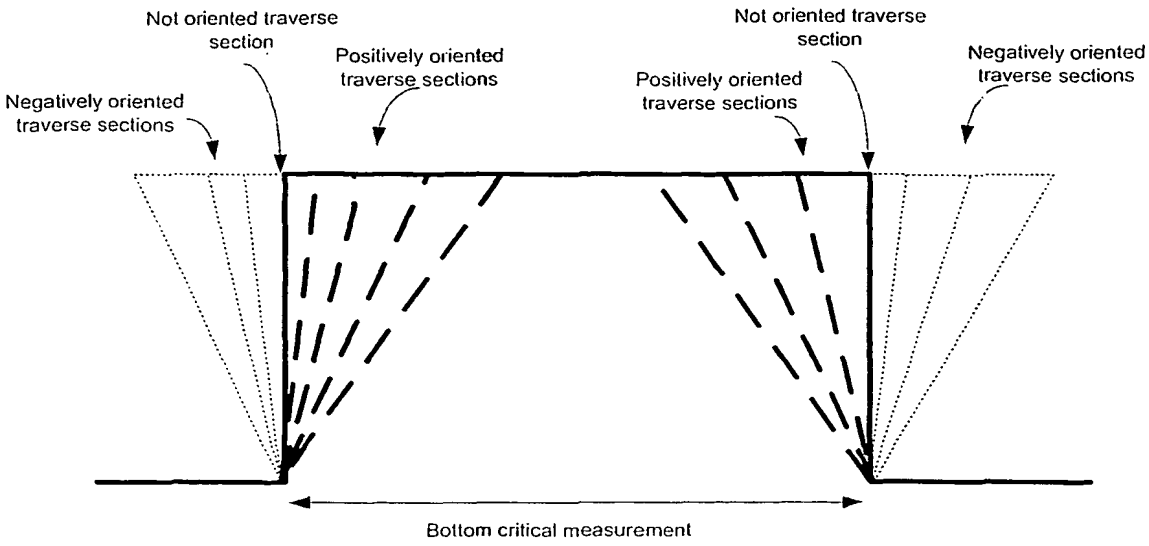
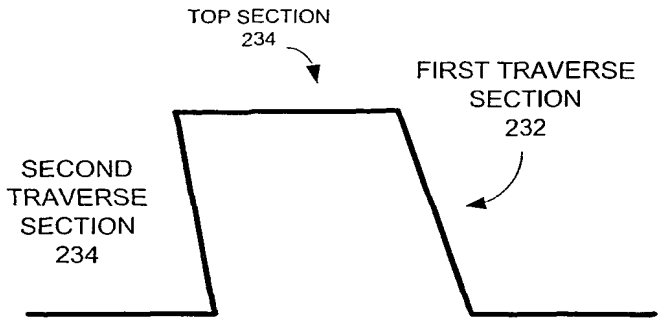

TOP
214
SECOND
SIDEWALL
216
FIRST
SIDEWALL
212
Line 210
TOP SECTION
224
SECOND
TRAVERSE
SECTION
226
FIRST TRAVERSE
SECTION
222
CROSS
SECTION 230

FIGURE 2a





CROSS SECTION 230

FIGURE 2b

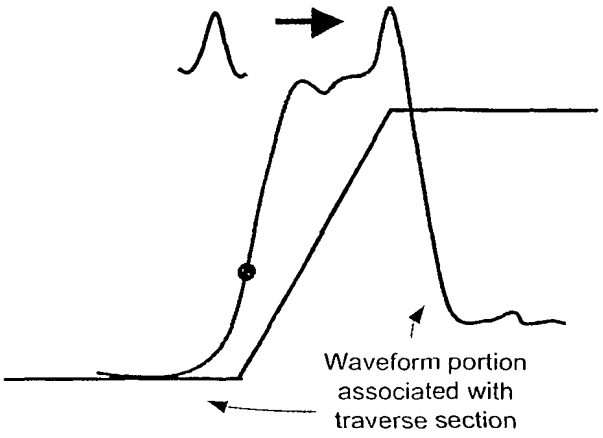


FIGURE 3a

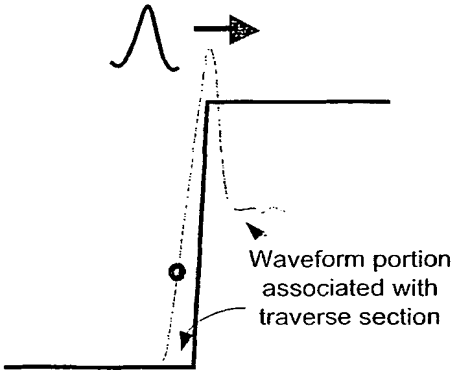


FIGURE 3b

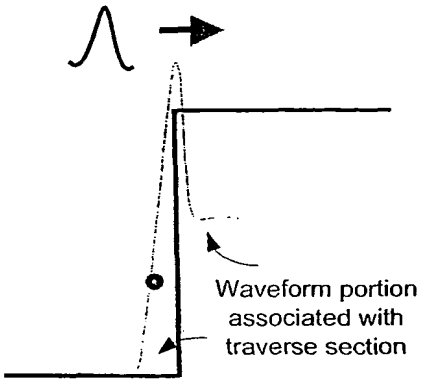


FIGURE 3c

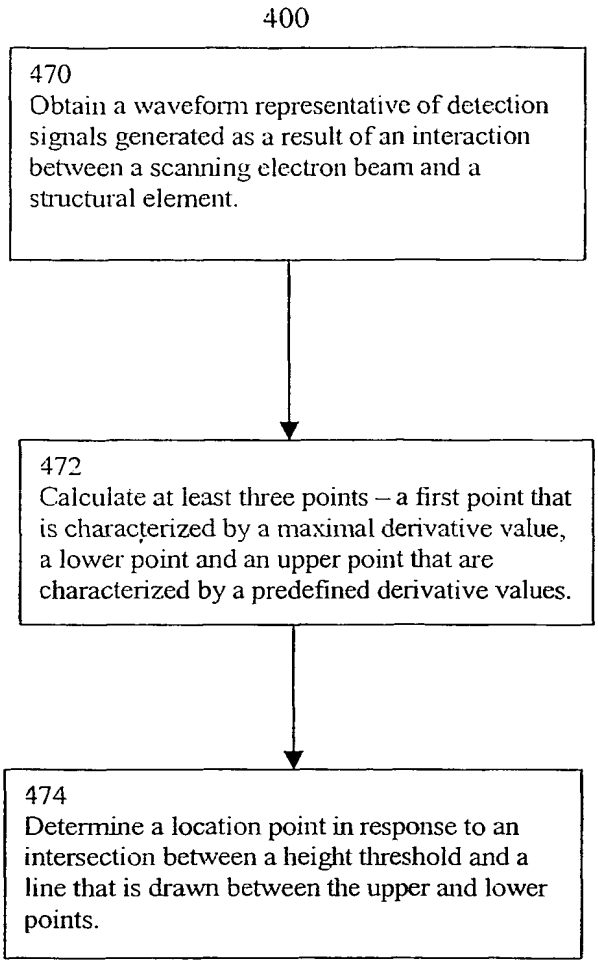

400
470
Obtain a waveform representative of detection signals generated as a result of an interaction between a scanning electron beam and a structural element.
472
Calculate at least three points – a first point that is characterized by a maximal derivative value, a lower point and an upper point that are characterized by a predefined derivative values.
474
Determine a location point in response to an intersection between a height threshold and a line that is drawn between the upper and lower points.

Fig. 4

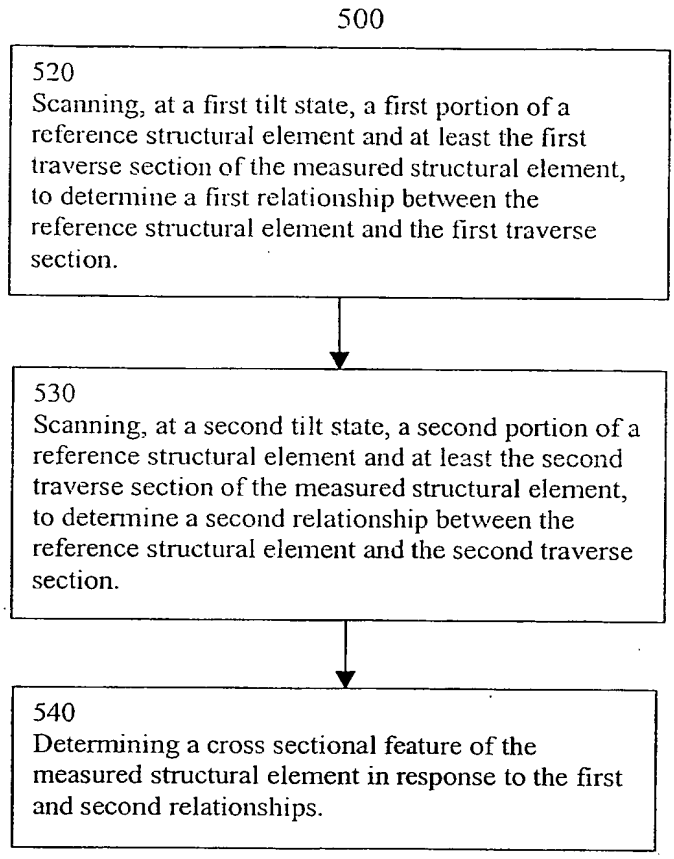

500
520
Scanning, at a first tilt state, a first portion of a reference structural element and at least the first traverse section of the measured structural element, to determine a first relationship between the reference structural element and the first traverse section.
530
Scanning, at a second tilt state, a second portion of a reference structural element and at least the second traverse section of the measured structural element, to determine a second relationship between the reference structural element and the second traverse section.
540
Determining a cross sectional feature of the measured structural element in response to the first and second relationships.

Fig. 5

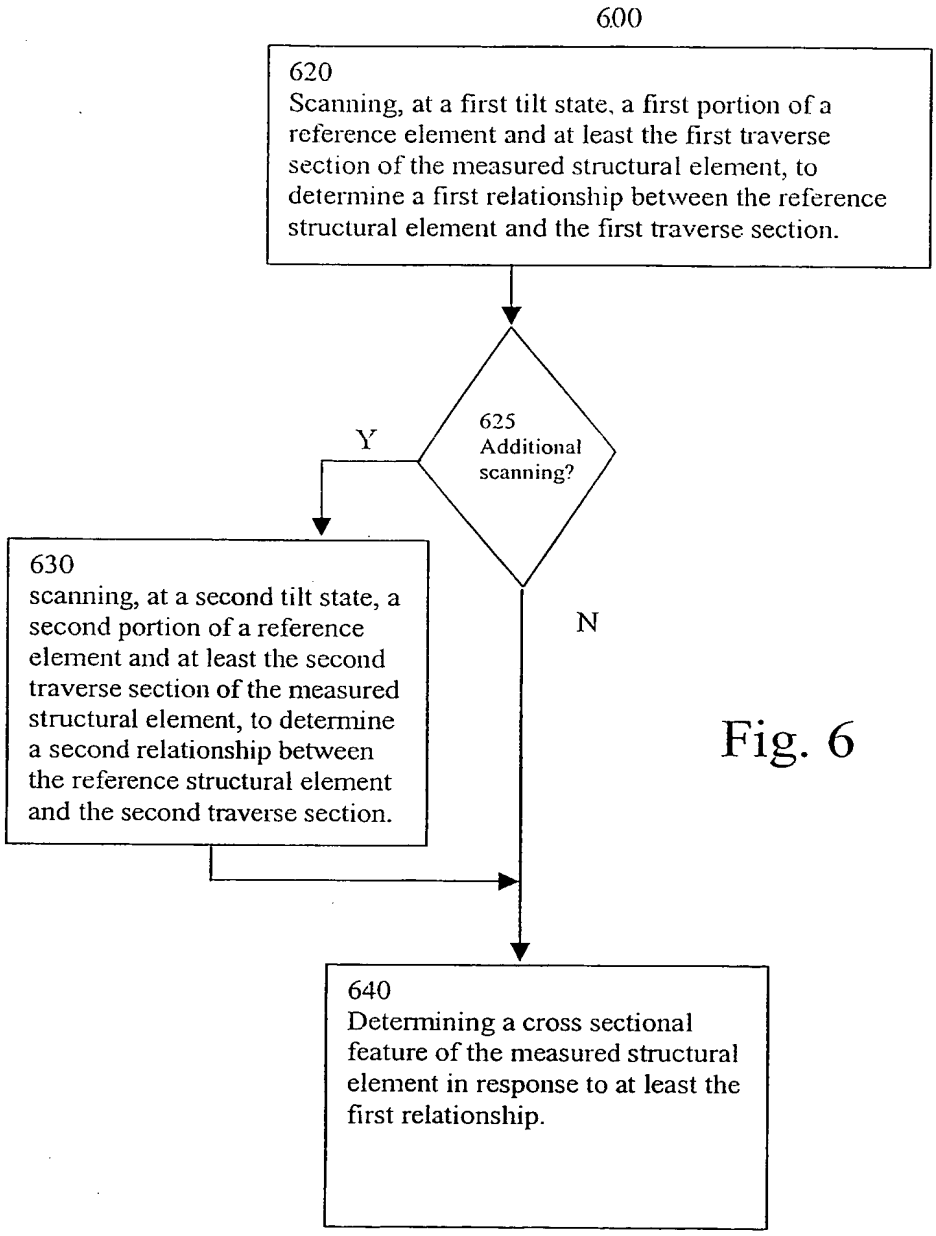

600
620
Scanning, at a first tilt state, a first portion of a reference element and at least the first traverse section of the measured structural element, to determine a first relationship between the reference structural element and the first traverse section.
625
Additional scanning?
Y
N
630
scanning, at a second tilt state, a second portion of a reference element and at least the second traverse section of the measured structural element, to determine a second relationship between the reference structural element and the second traverse section.
640
Determining a cross sectional feature of the measured structural element in response to at least the first relationship.

Fig. 6

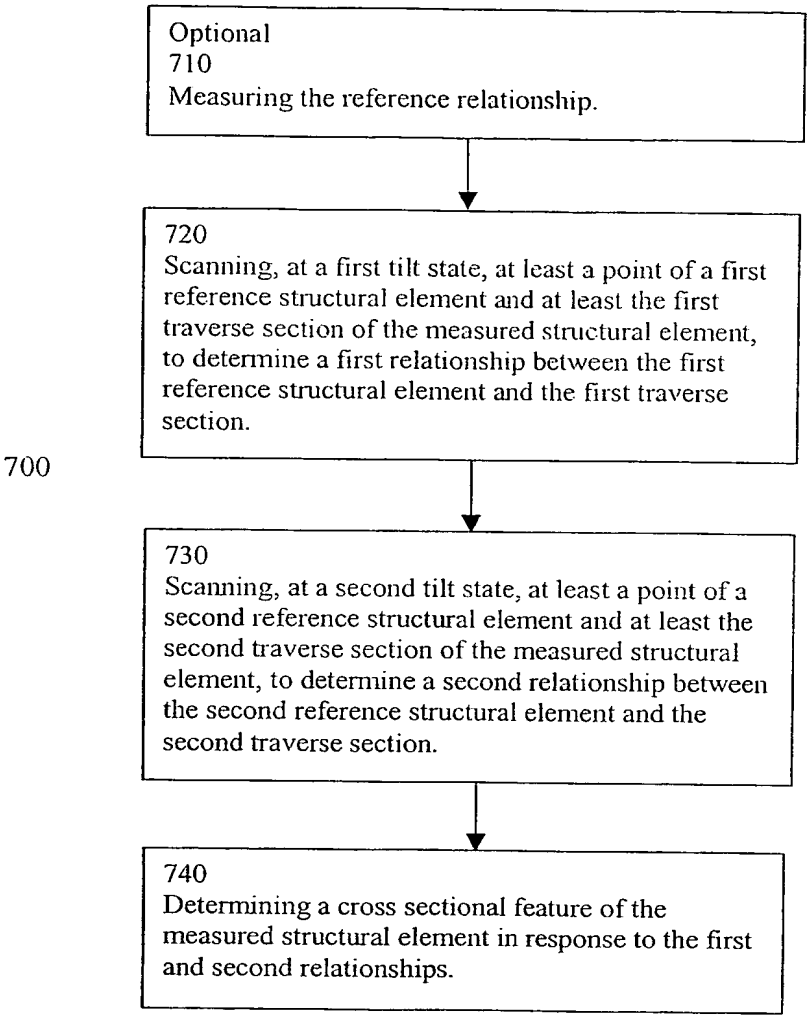

Optional
710
Measuring the reference relationship.
720
Scanning, at a first tilt state, at least a point of a first reference structural element and at least the first traverse section of the measured structural element, to determine a first relationship between the first reference structural element and the first traverse section.
700
730
Scanning, at a second tilt state, at least a point of a second reference structural element and at least the second traverse section of the measured structural element, to determine a second relationship between the second reference structural element and the second traverse section.
740
Determining a cross sectional feature of the measured structural element in response to the first and second relationships.

Fig. 7

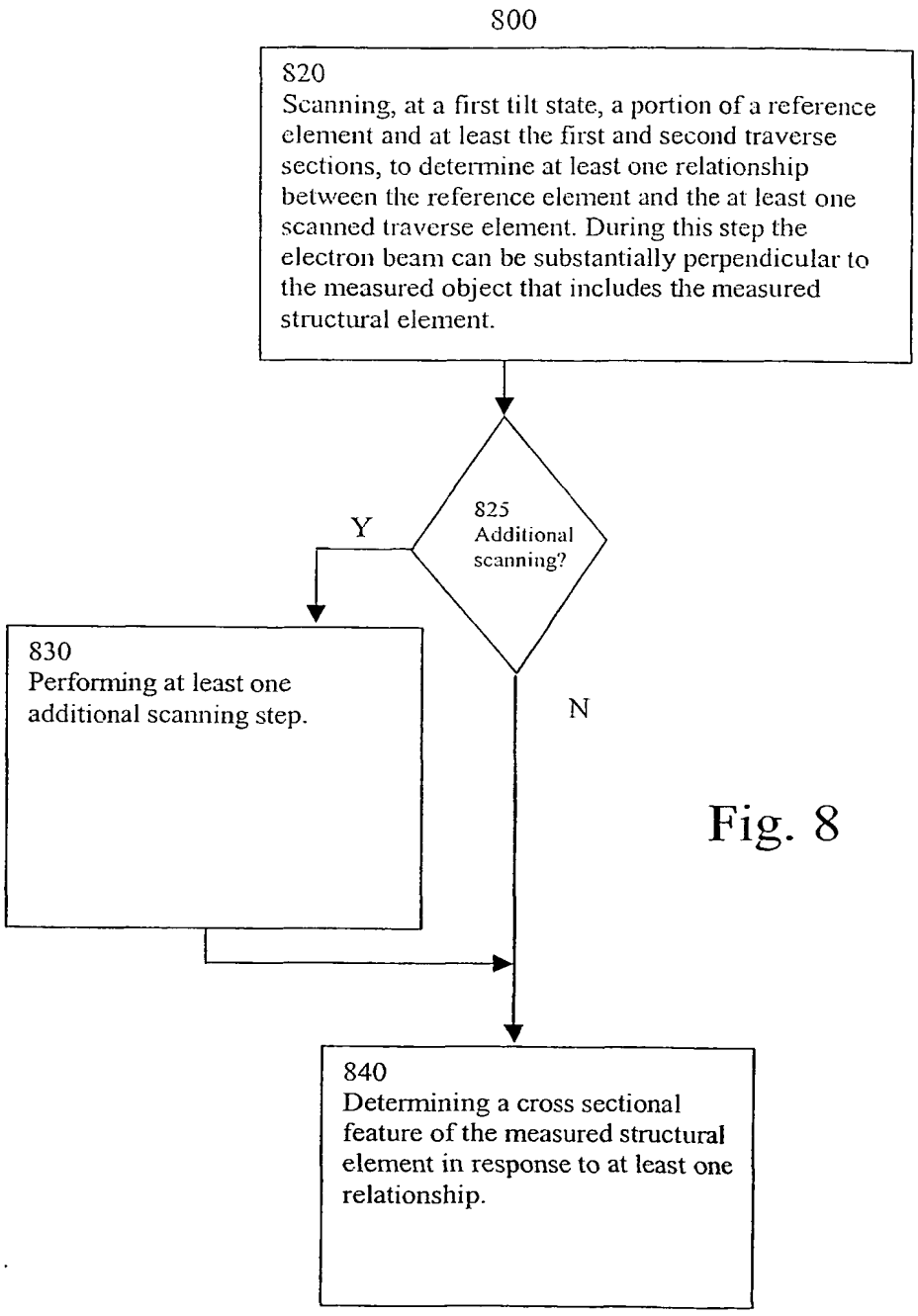

800
820
Scanning, at a first tilt state, a portion of a reference element and at least the first and second traverse sections, to determine at least one relationship between the reference element and the at least one scanned traverse element. During this step the electron beam can be substantially perpendicular to the measured object that includes the measured structural element.
825
Additional scanning?
Y
N
830
Performing at least one additional scanning step.
840
Determining a cross sectional feature of the measured structural element in response to at least one relationship.

Fig. 8

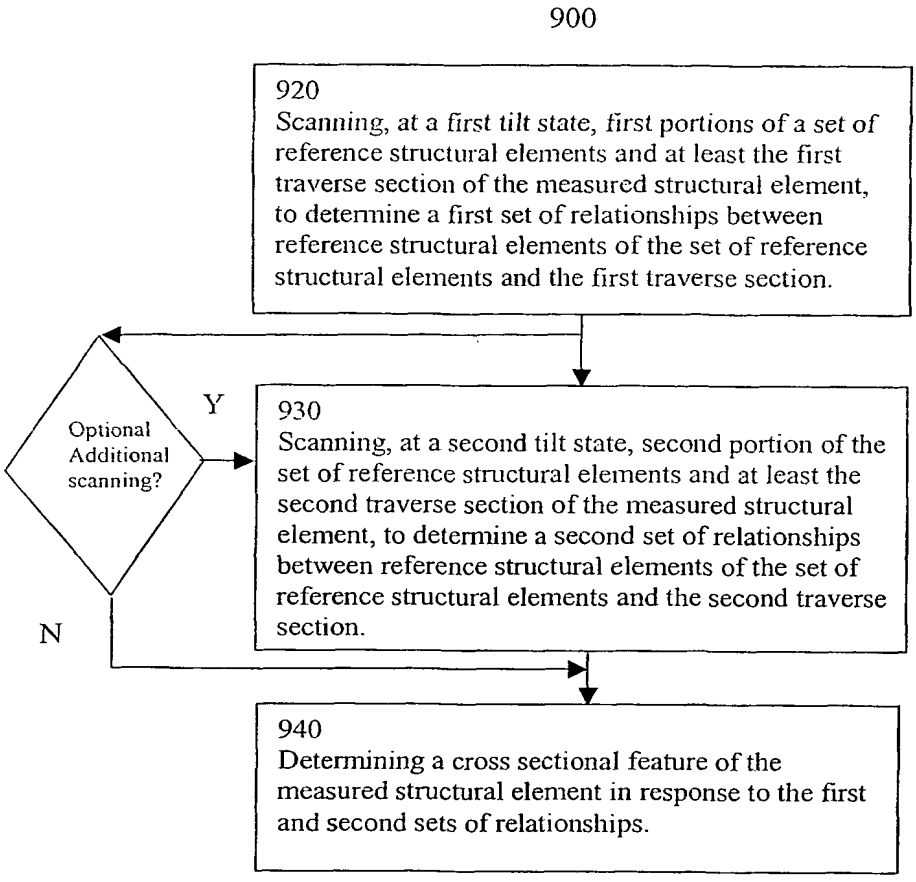

900
920
Scanning, at a first tilt state, first portions of a set of reference structural elements and at least the first traverse section of the measured structural element, to determine a first set of relationships between reference structural elements of the set of reference structural elements and the first traverse section.
Optional Additional scanning?
Y
930
Scanning, at a second tilt state, second portion of the set of reference structural elements and at least the second traverse section of the measured structural element, to determine a second set of relationships between reference structural elements of the set of reference structural elements and the second traverse section.
N
940
Determining a cross sectional feature of the measured structural element in response to the first and second sets of relationships.

Fig. 9